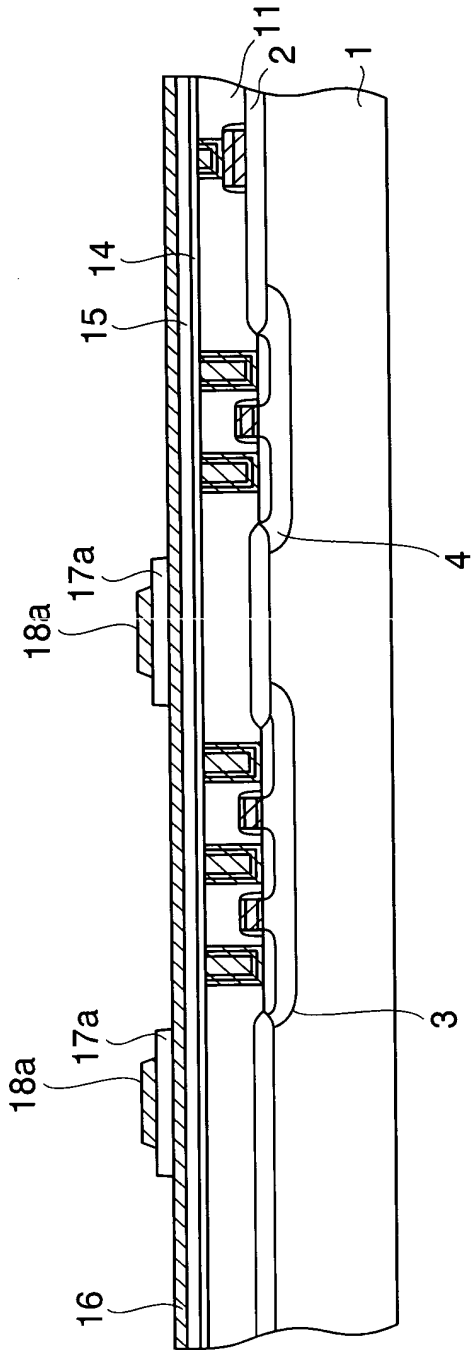
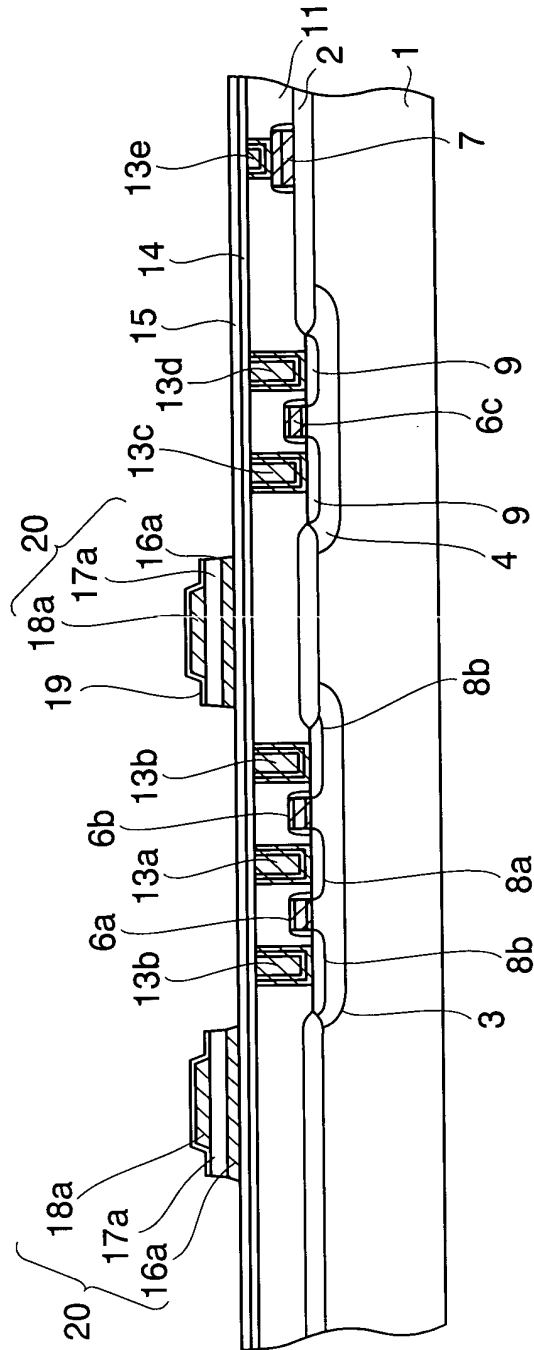


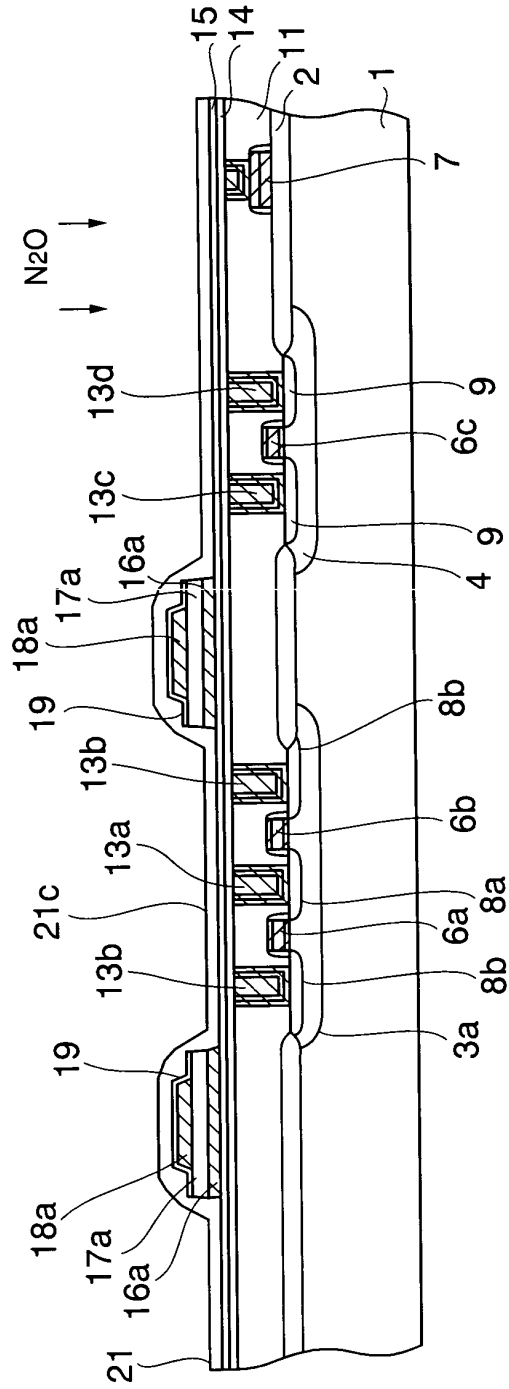
FIG. 3

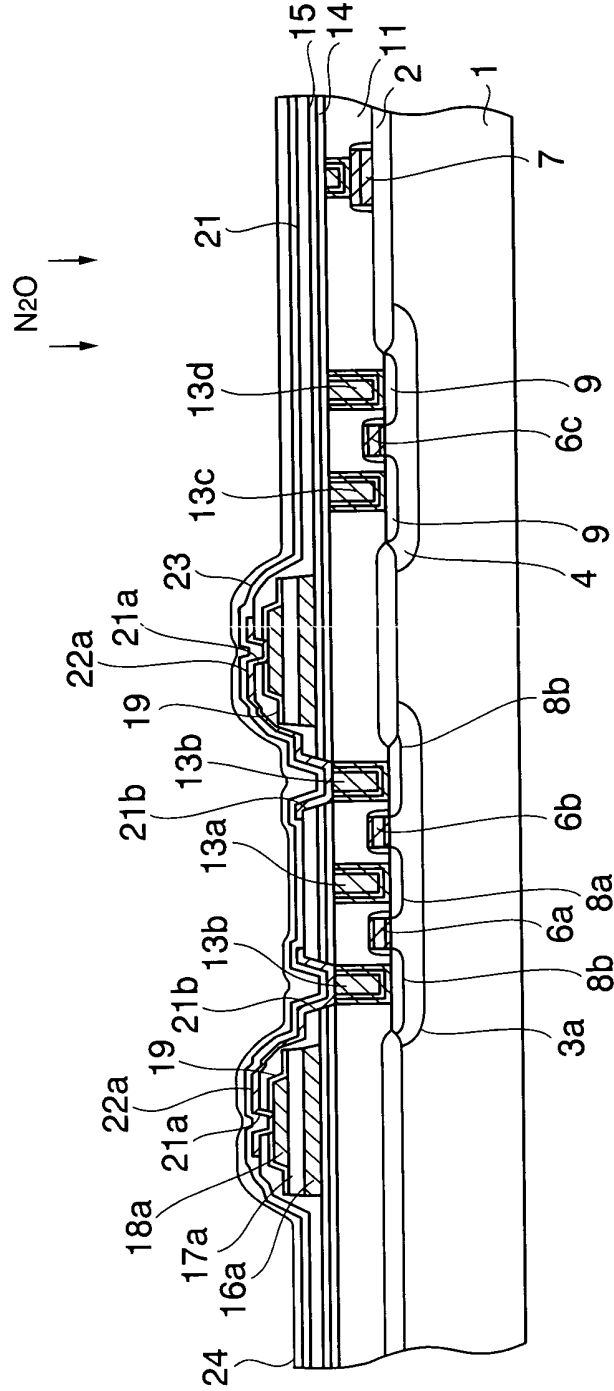


This cross-sectional view illustrates a multi-layered electronic device assembly. The assembly consists of a top substrate (1) and a bottom substrate (3), which are separated by a central core layer (4). The core layer (4) is composed of multiple layers (8a, 8b, 8c) and is sandwiched between two conductive layers (6a, 6b). The conductive layers (6a, 6b) are connected to a central conductive layer (6c) via vertical vias (13a, 13b, 13c, 13d, 13e). The top substrate (1) is connected to the central conductive layer (6c) via a top contact layer (11). The bottom substrate (3) is connected to the central conductive layer (6c) via a bottom contact layer (19). The assembly is further protected by a top protective layer (2) and a bottom protective layer (18a). The central conductive layer (6c) is shown with a hatched pattern, indicating a conductive material. The top and bottom substrates (1, 3) are shown with a solid pattern, indicating a non-conductive material. The core layer (4) is shown with a solid pattern, indicating a non-conductive material. The vertical vias (13a, 13b, 13c, 13d, 13e) are shown with a hatched pattern, indicating a conductive material. The top contact layer (11) and bottom contact layer (19) are shown with a hatched pattern, indicating a conductive material. The top protective layer (2) and bottom protective layer (18a) are shown with a solid pattern, indicating a non-conductive material.

FIG. 5







1



FIG. 9

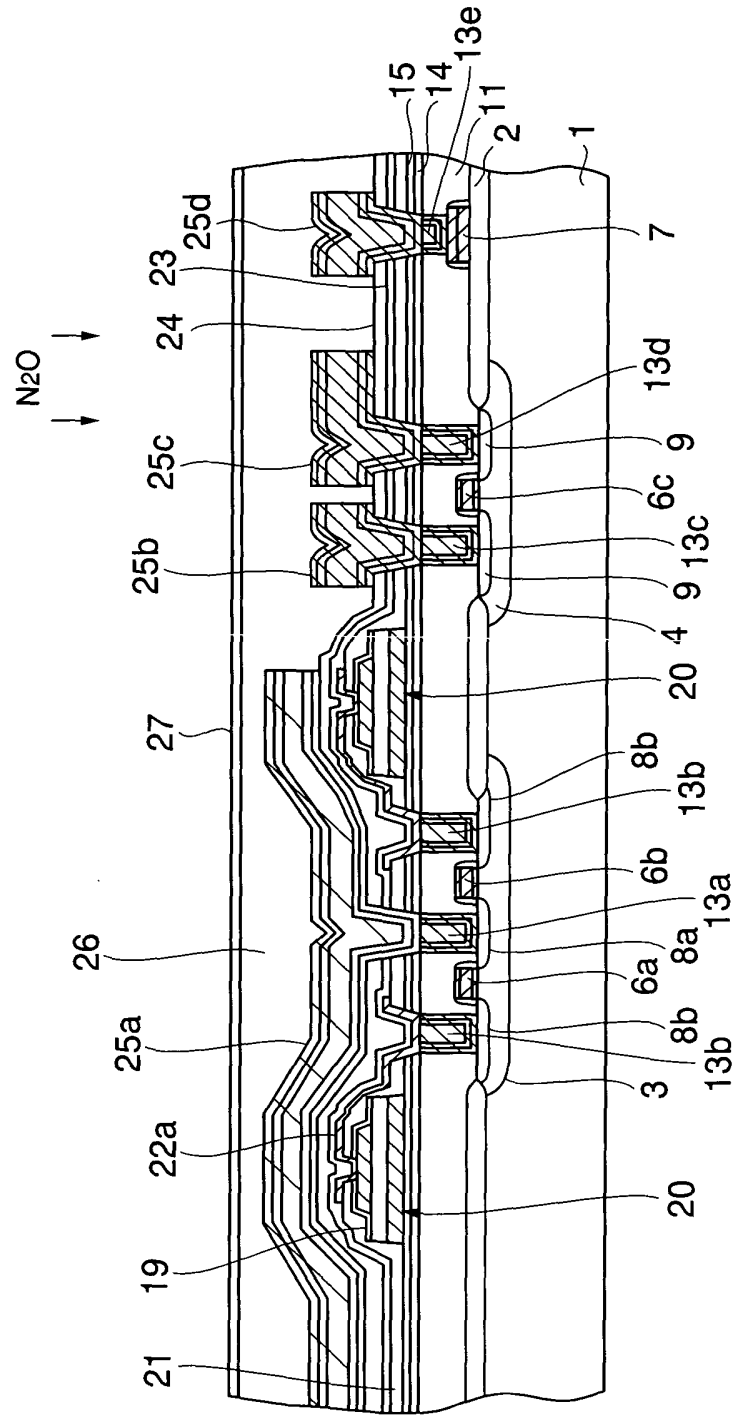


FIG. 10

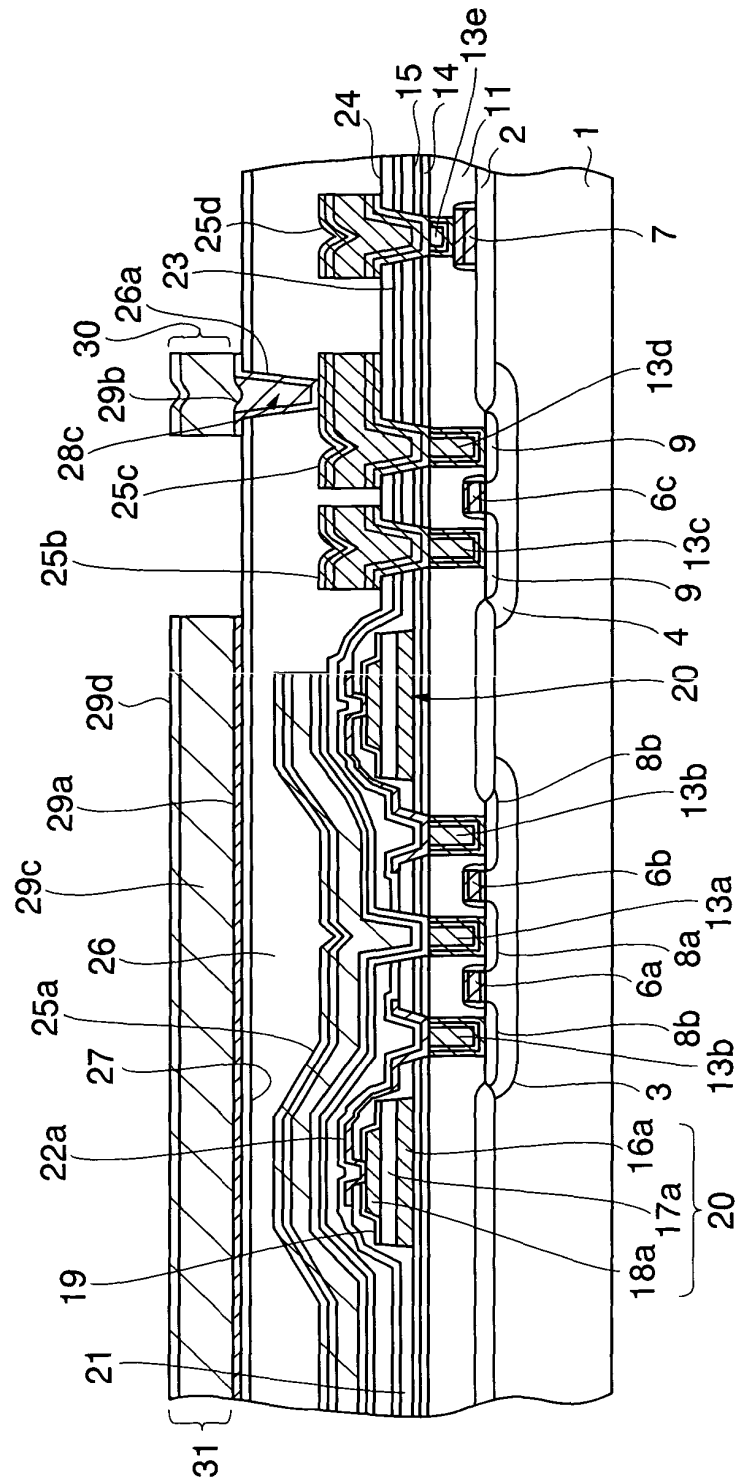
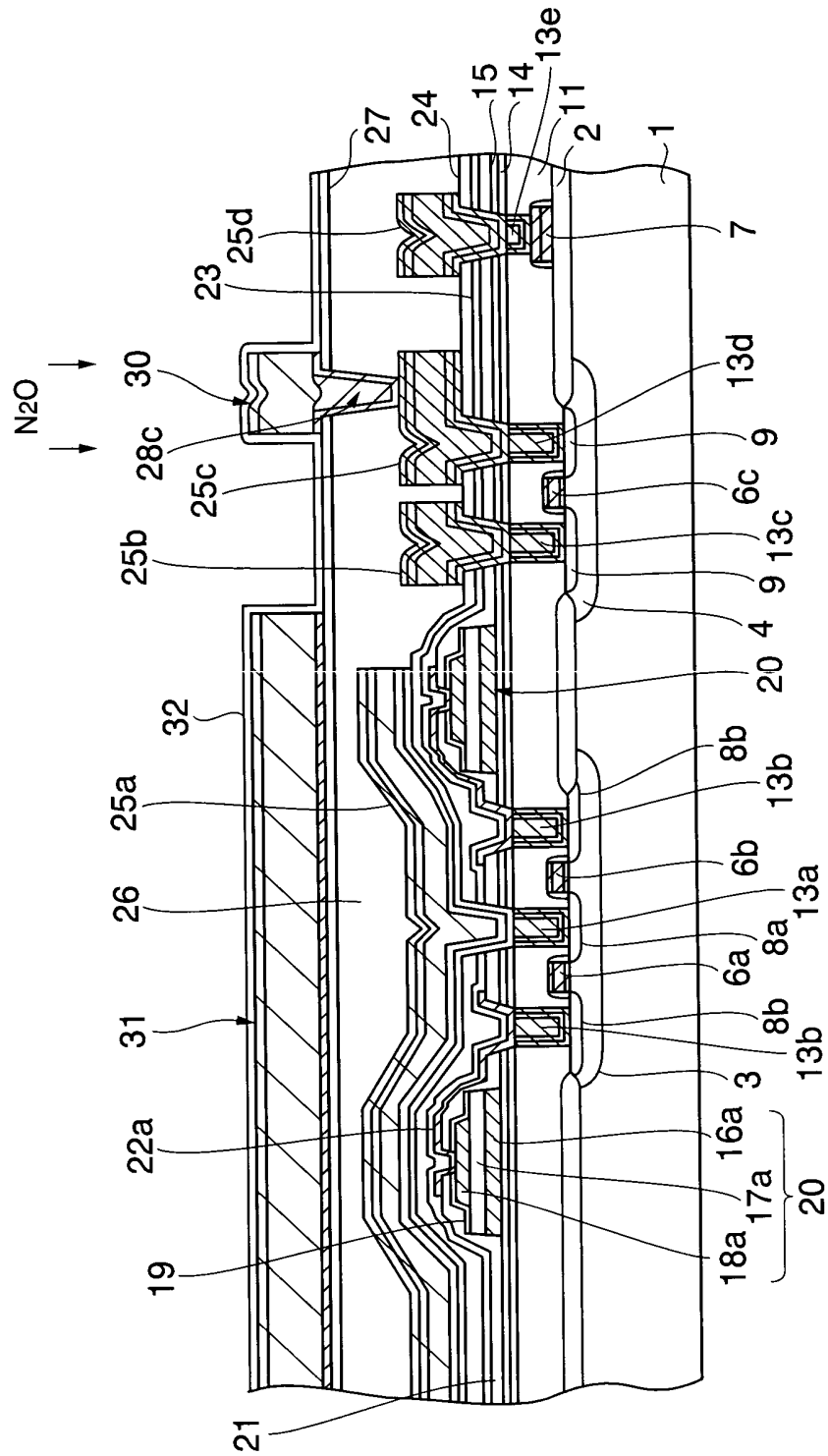


FIG. 11



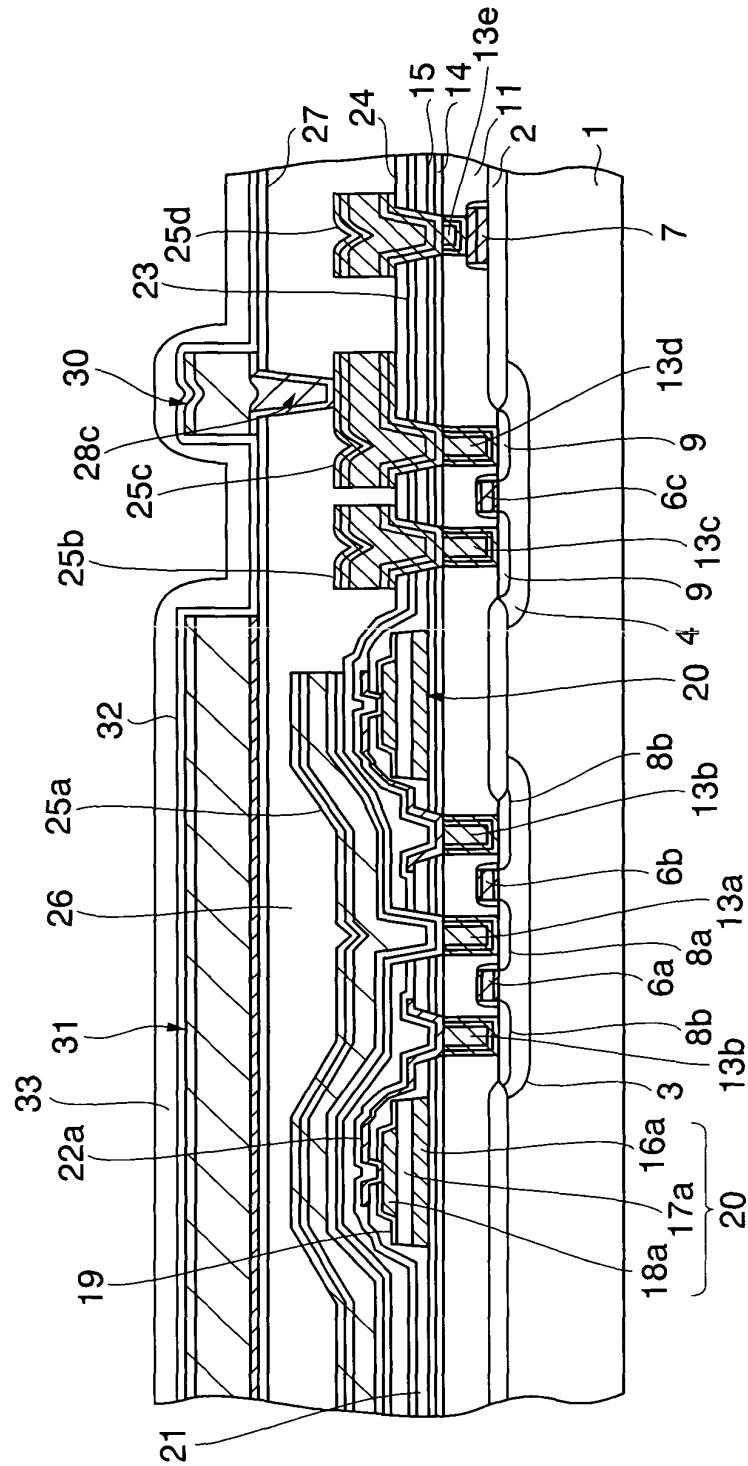
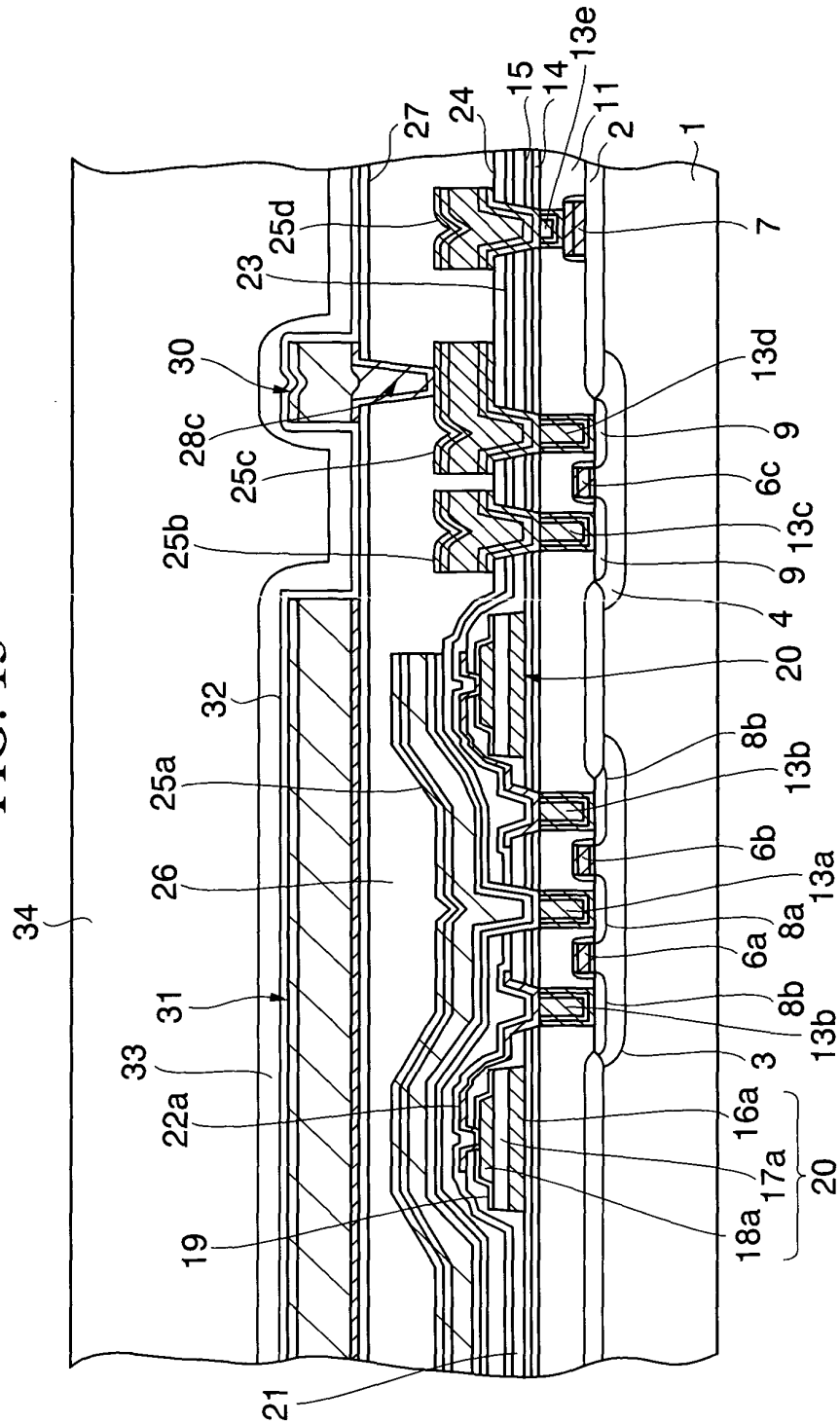


FIG. 13



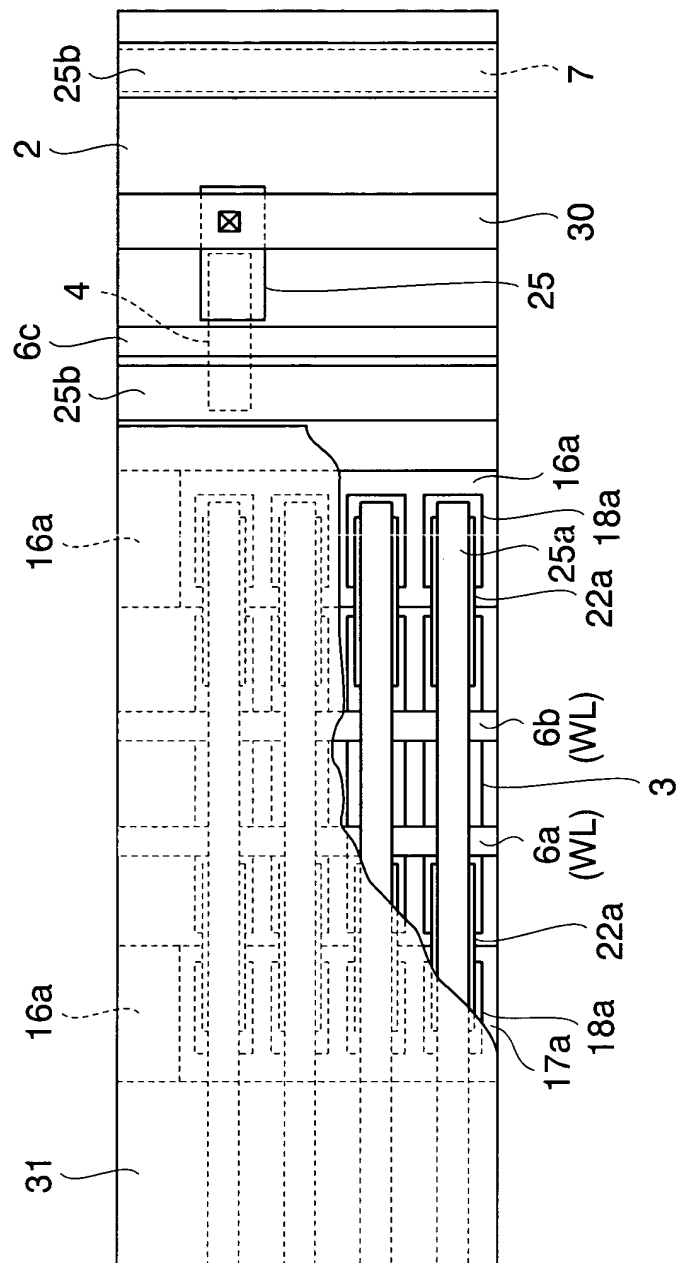


FIG. 15

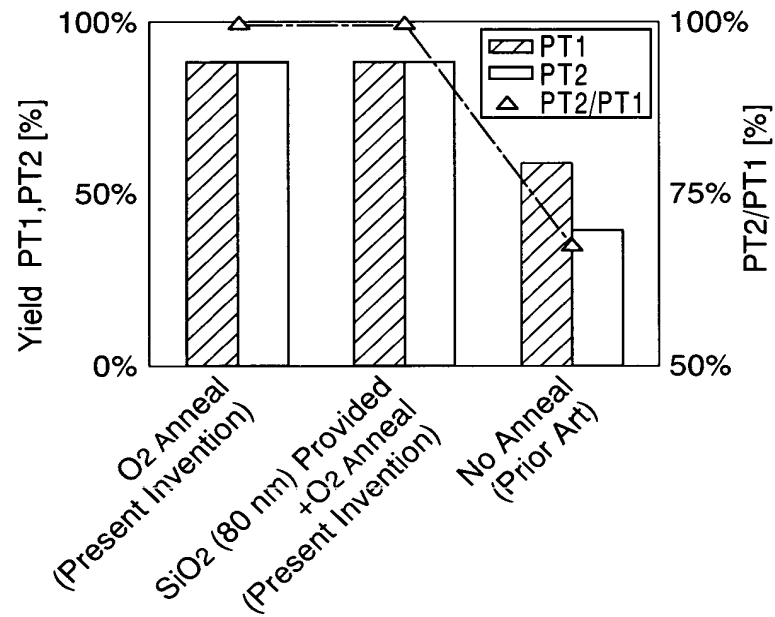


FIG. 16

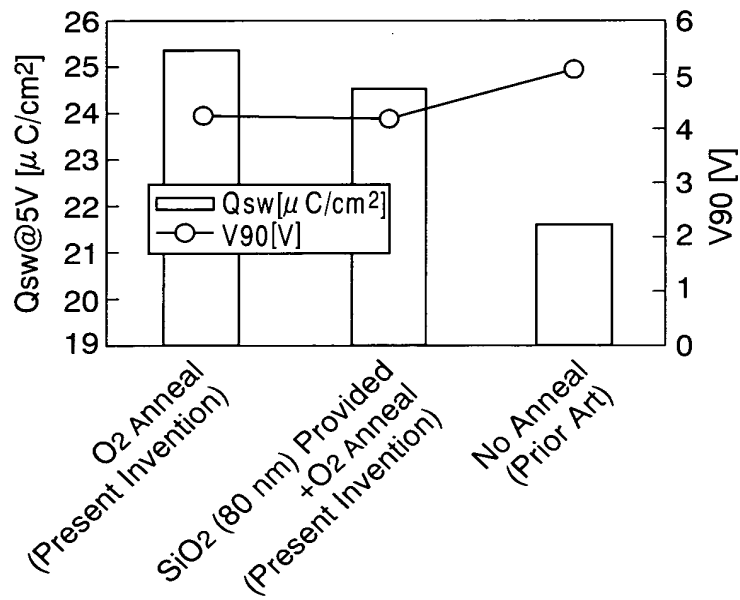
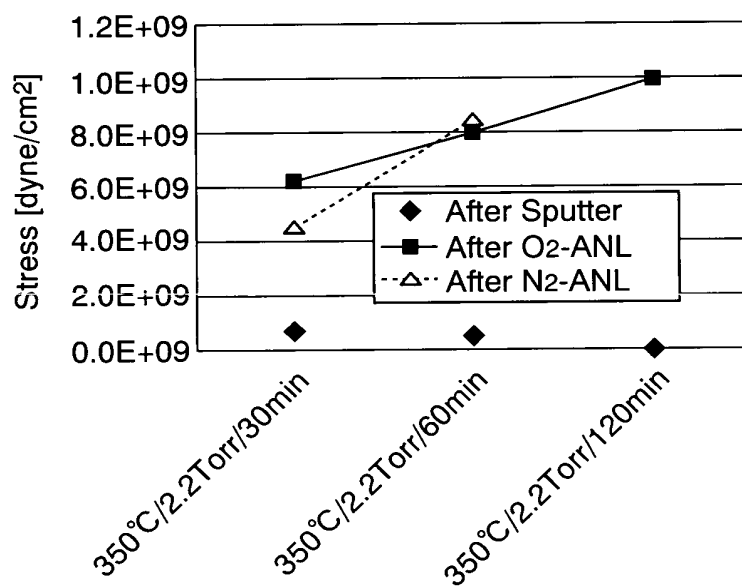


FIG. 17



Sample Structure ;TiN(100nm)/Al-Cu(500nm)/SiO₂(100nm)/Si

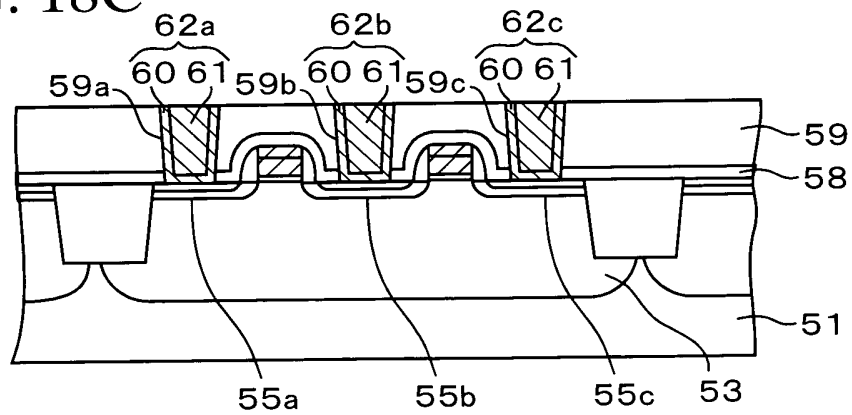


FIG. 19A

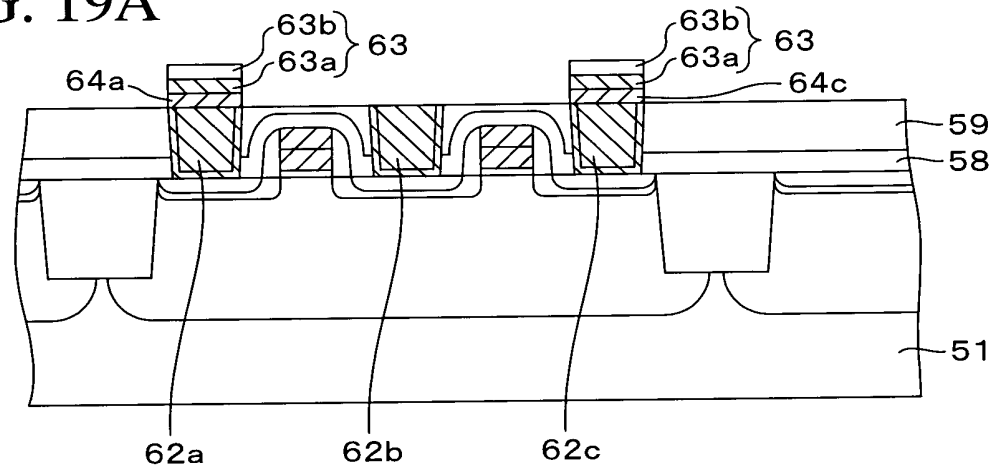


FIG. 19B

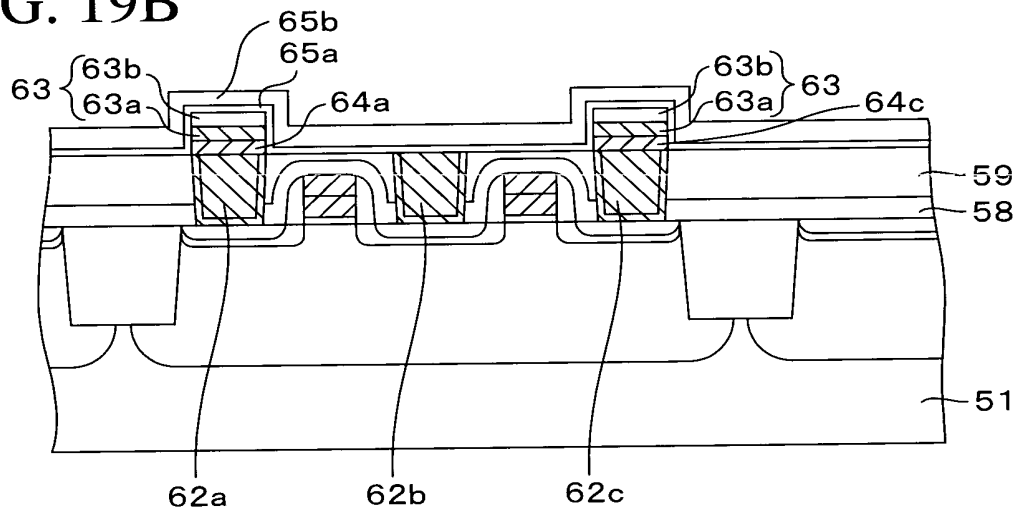


FIG. 19C

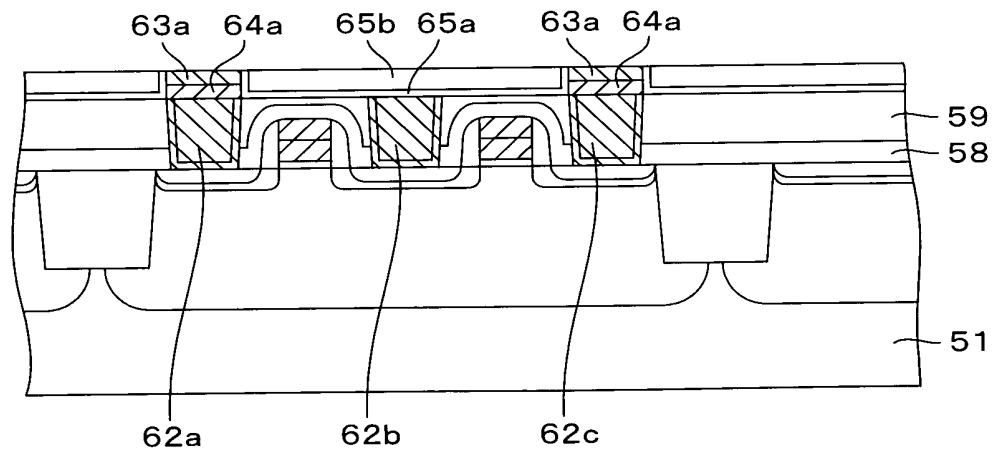


FIG. 20A

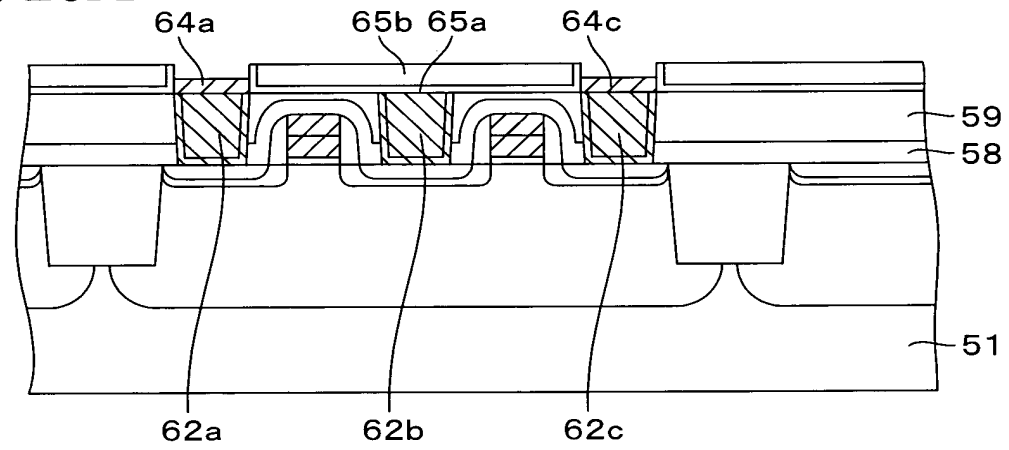


FIG. 20B

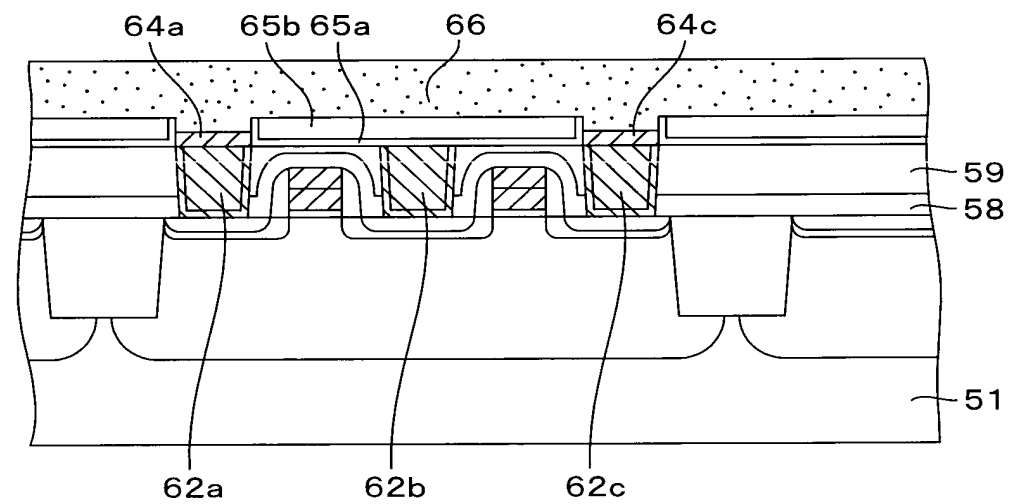


FIG. 20C

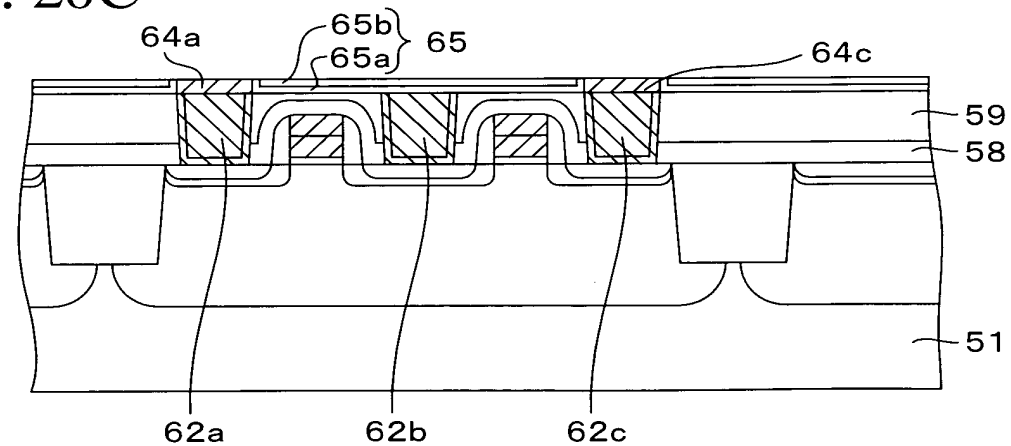


FIG. 21A

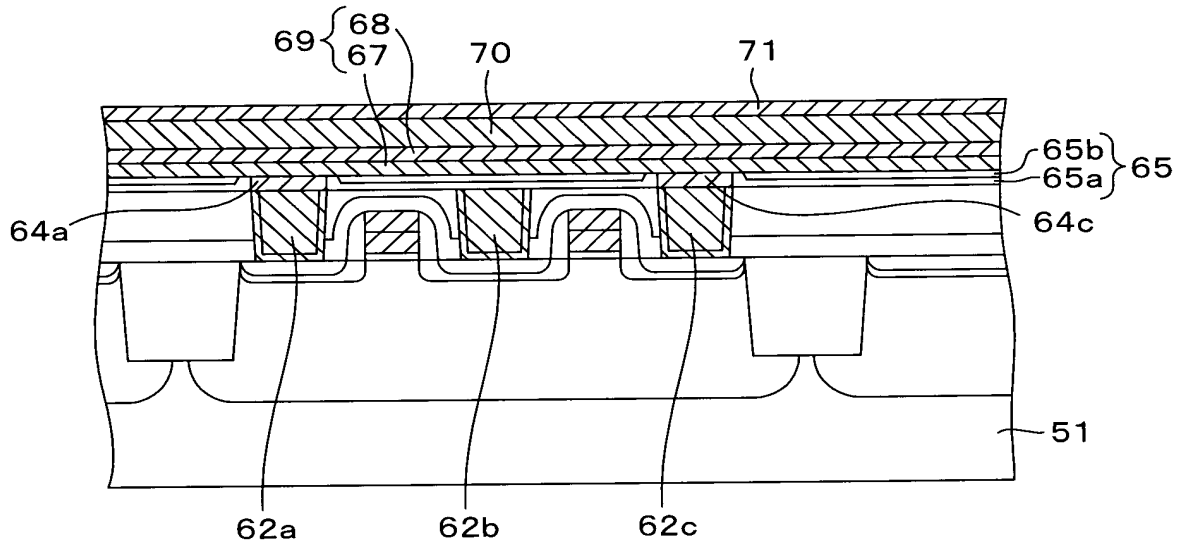


FIG. 21B

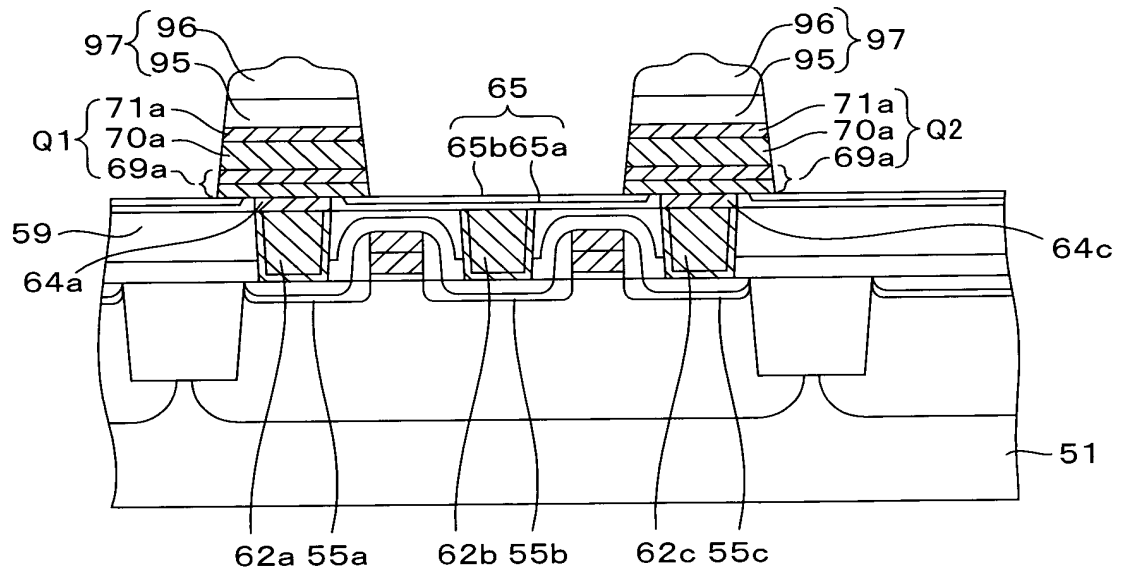


FIG. 22A

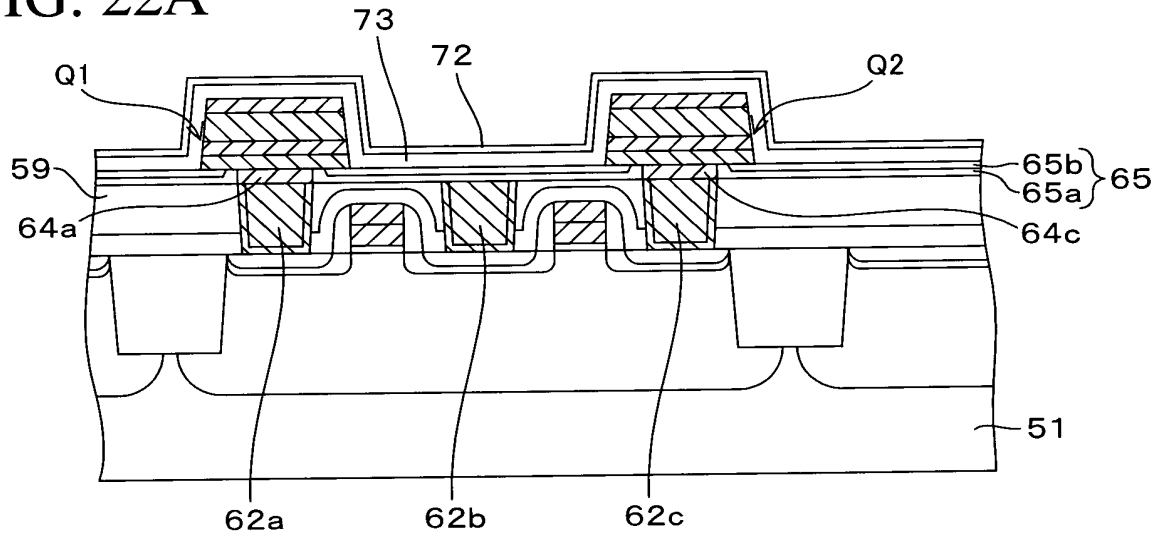


FIG. 22B

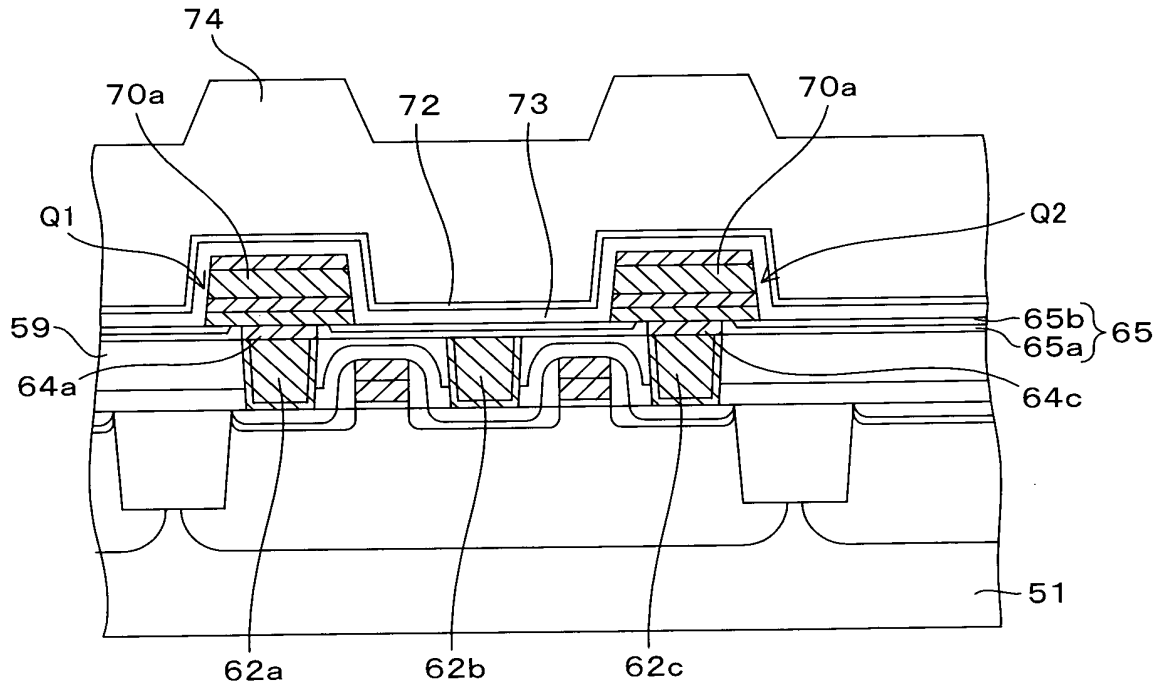


FIG. 23A

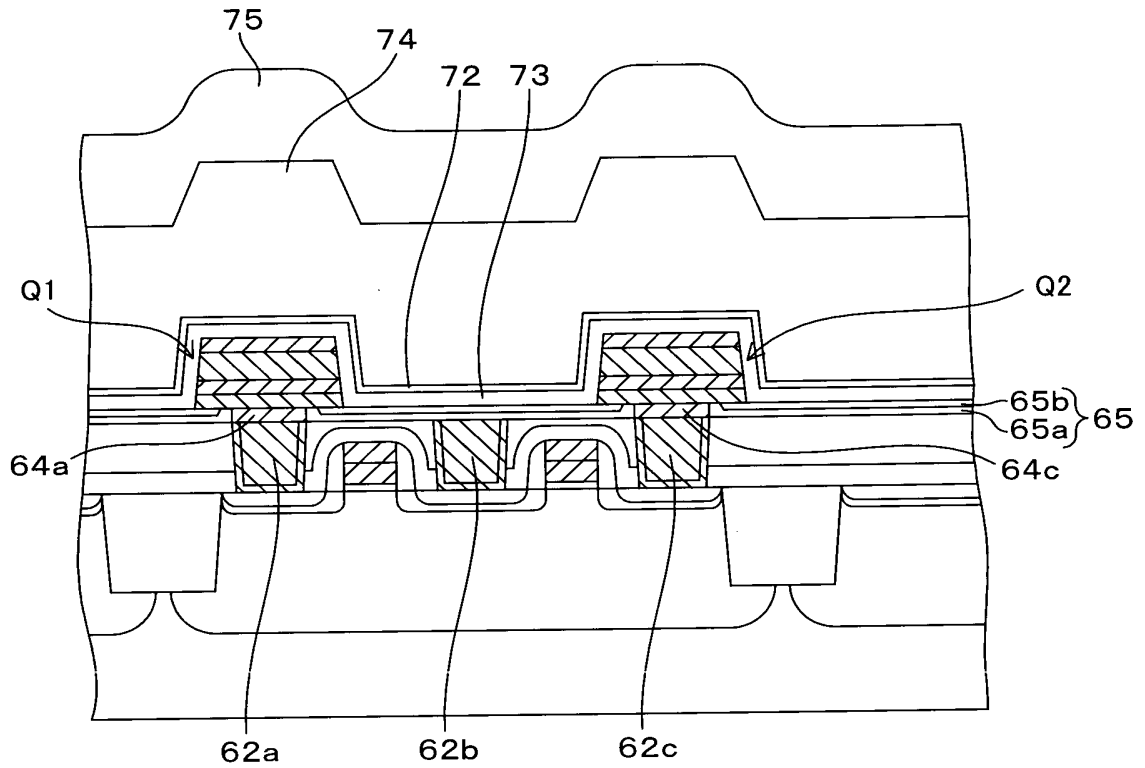
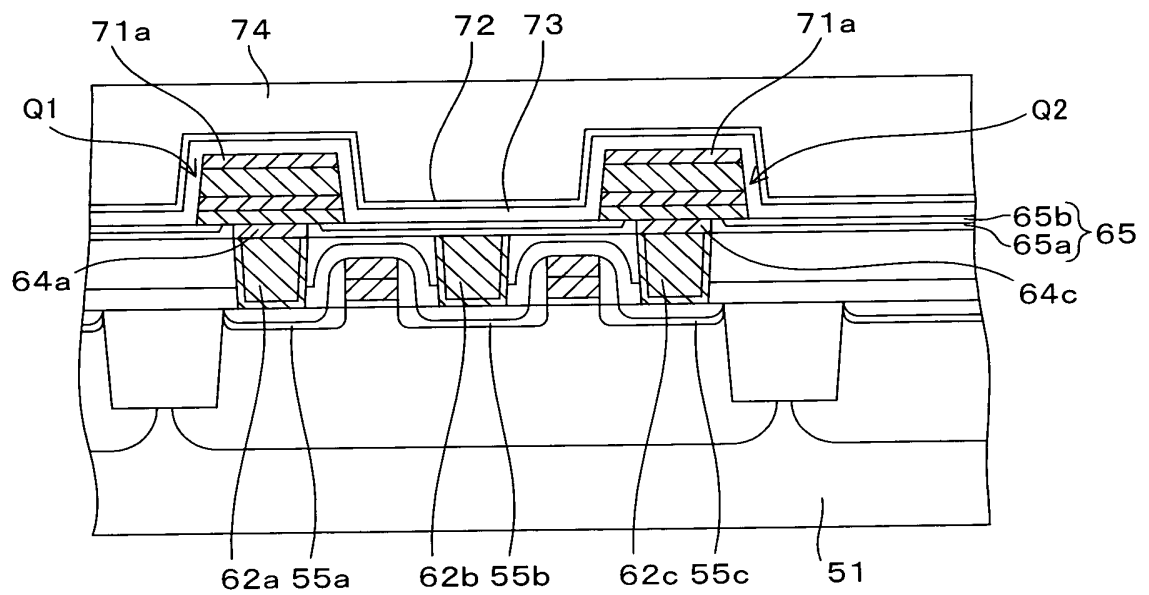
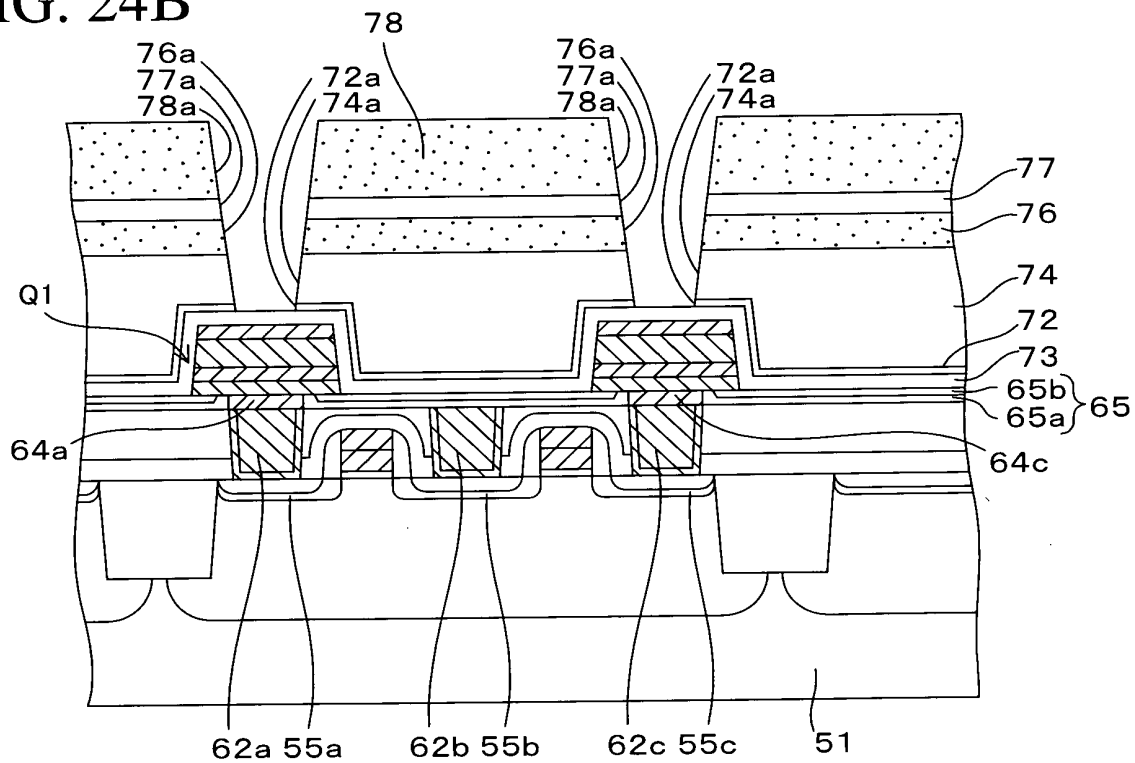
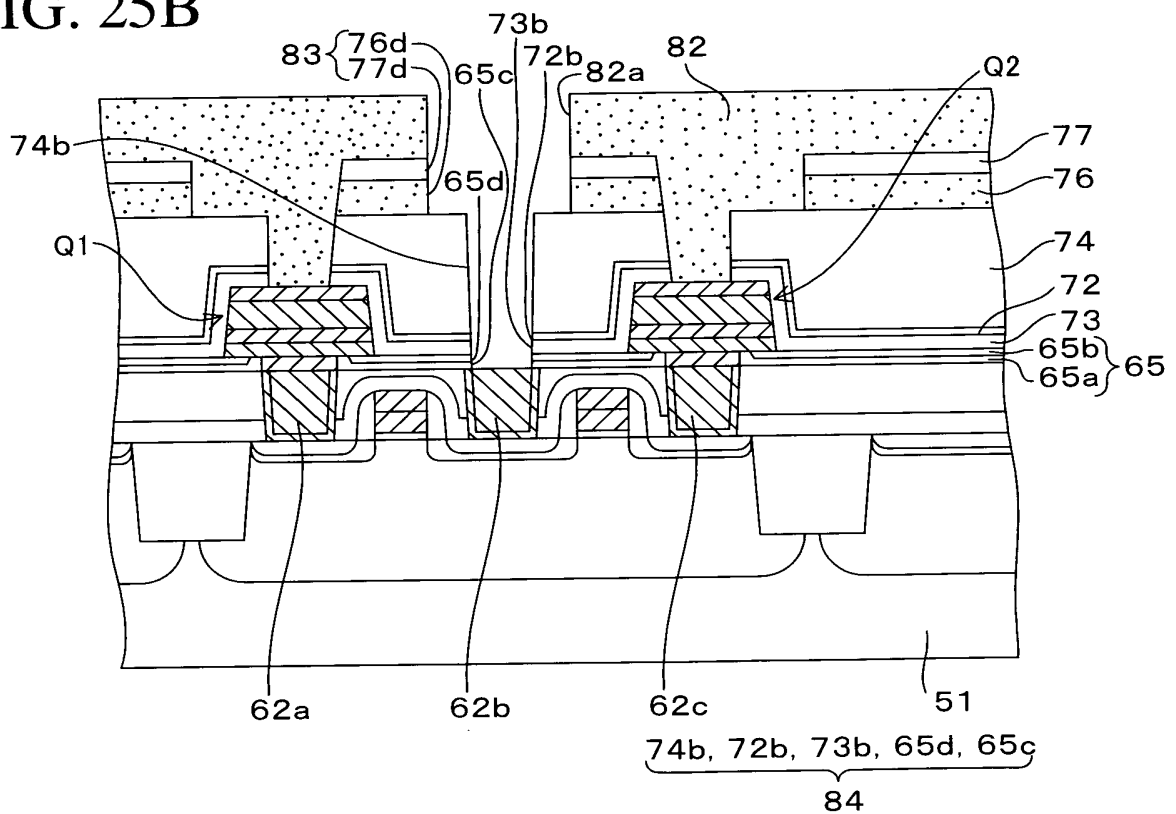


FIG. 23B







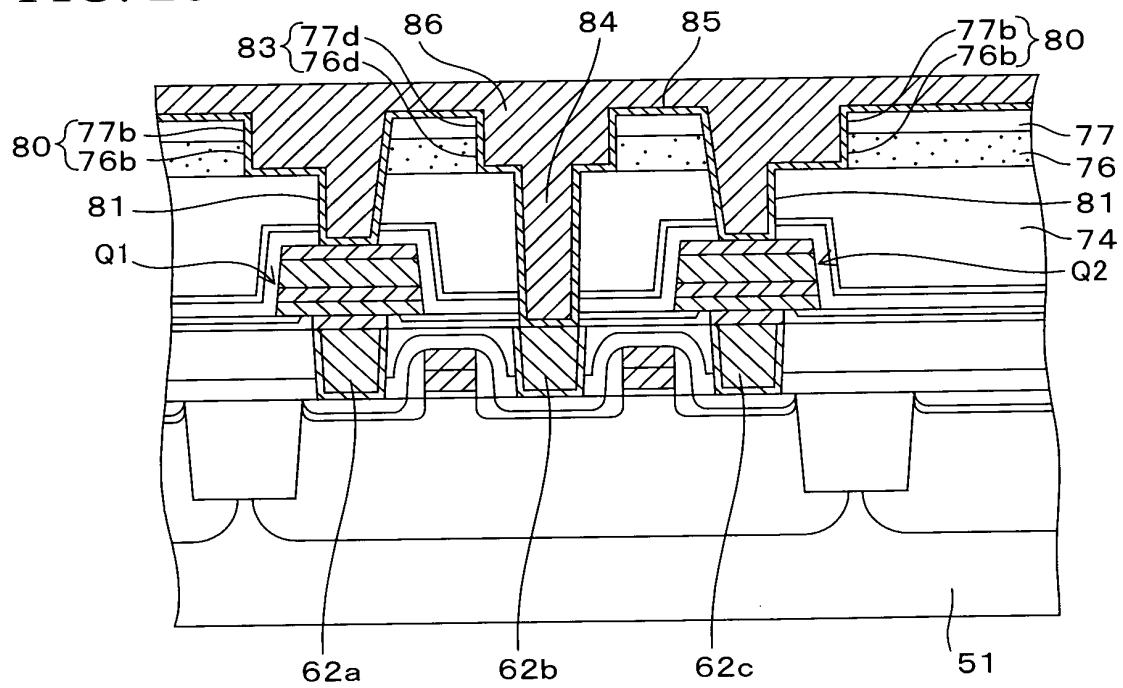
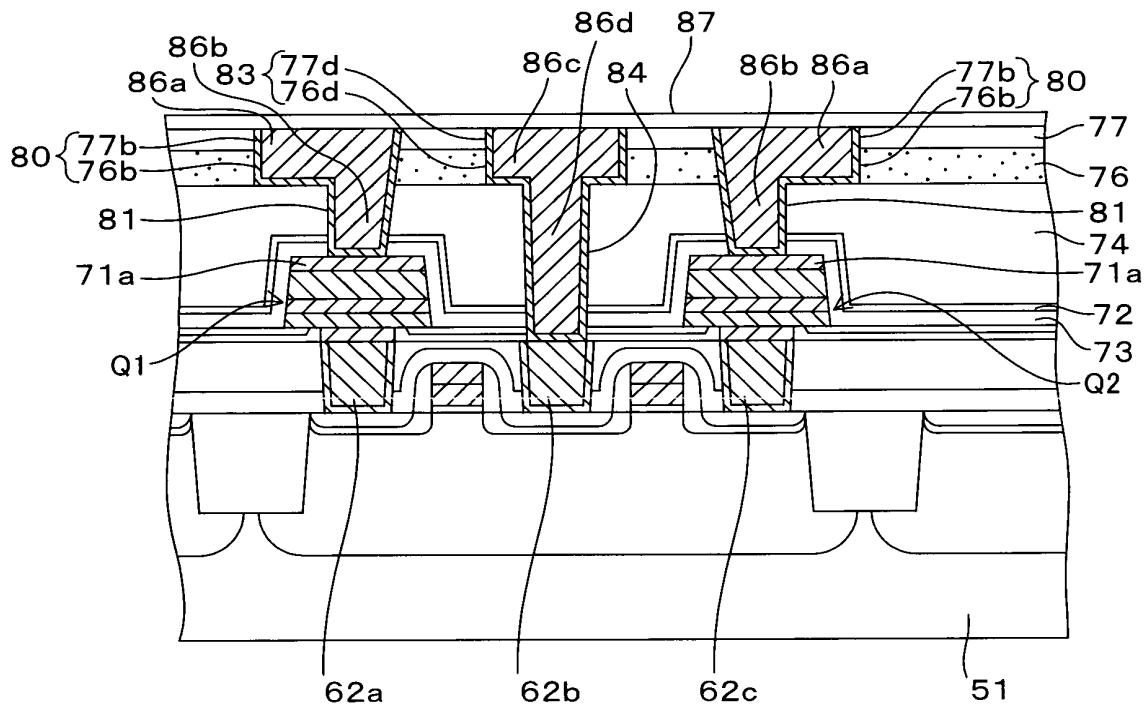
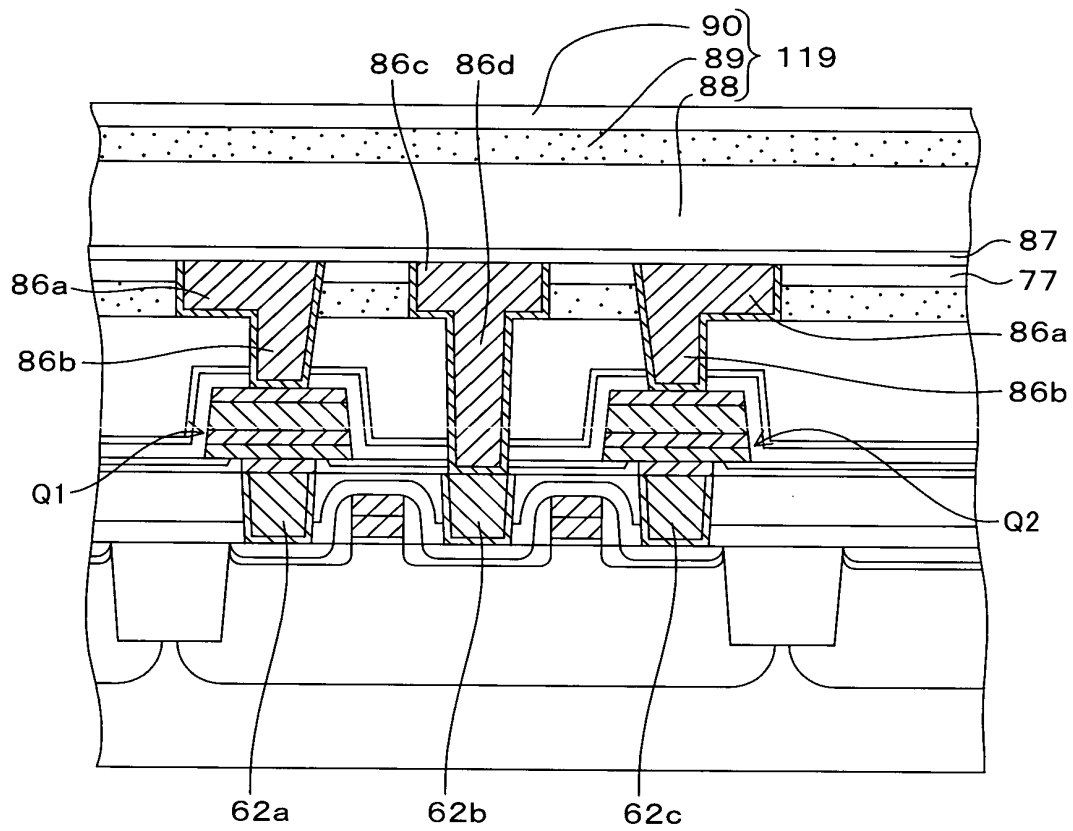


FIG. 27



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Docket No.: 031006

FIG. 28



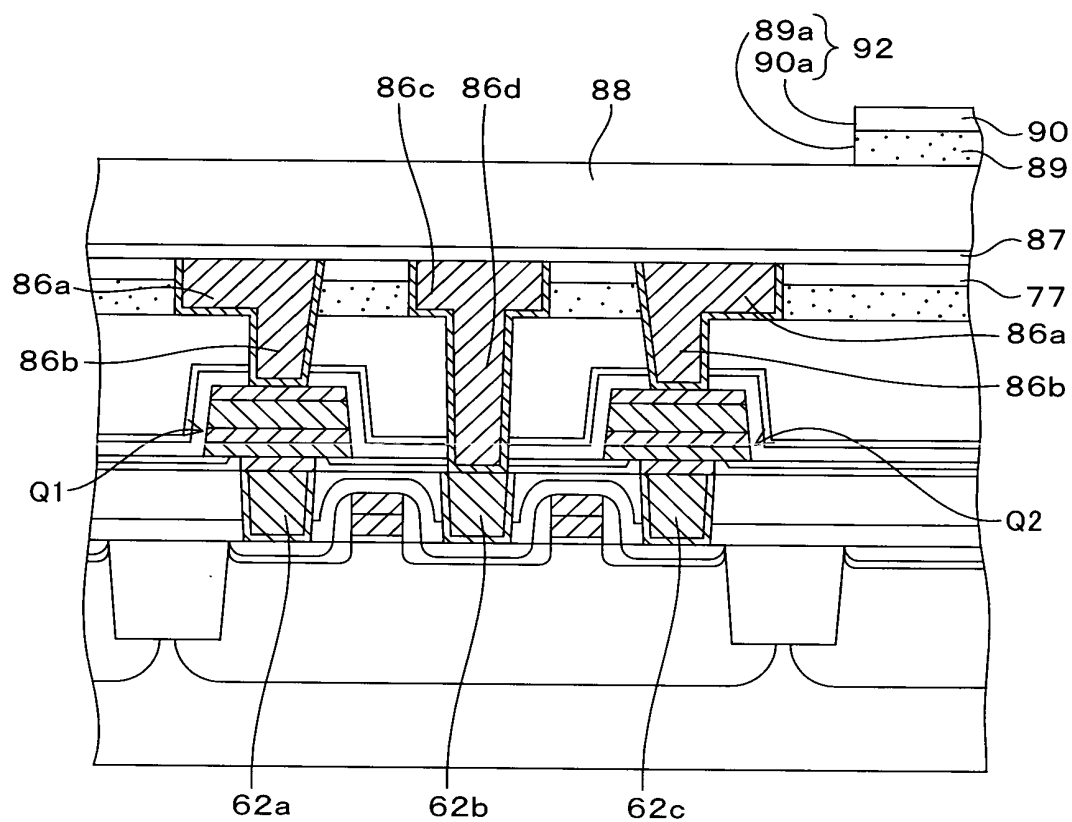


FIG. 30

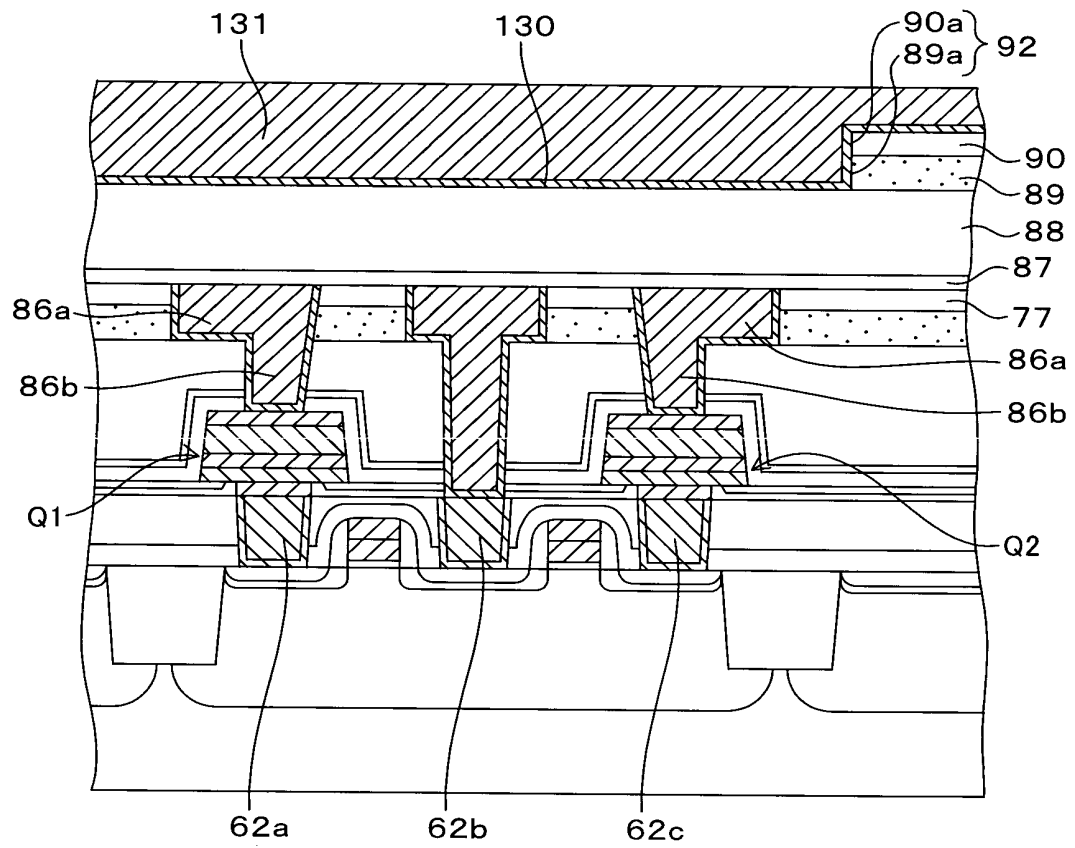


FIG. 31

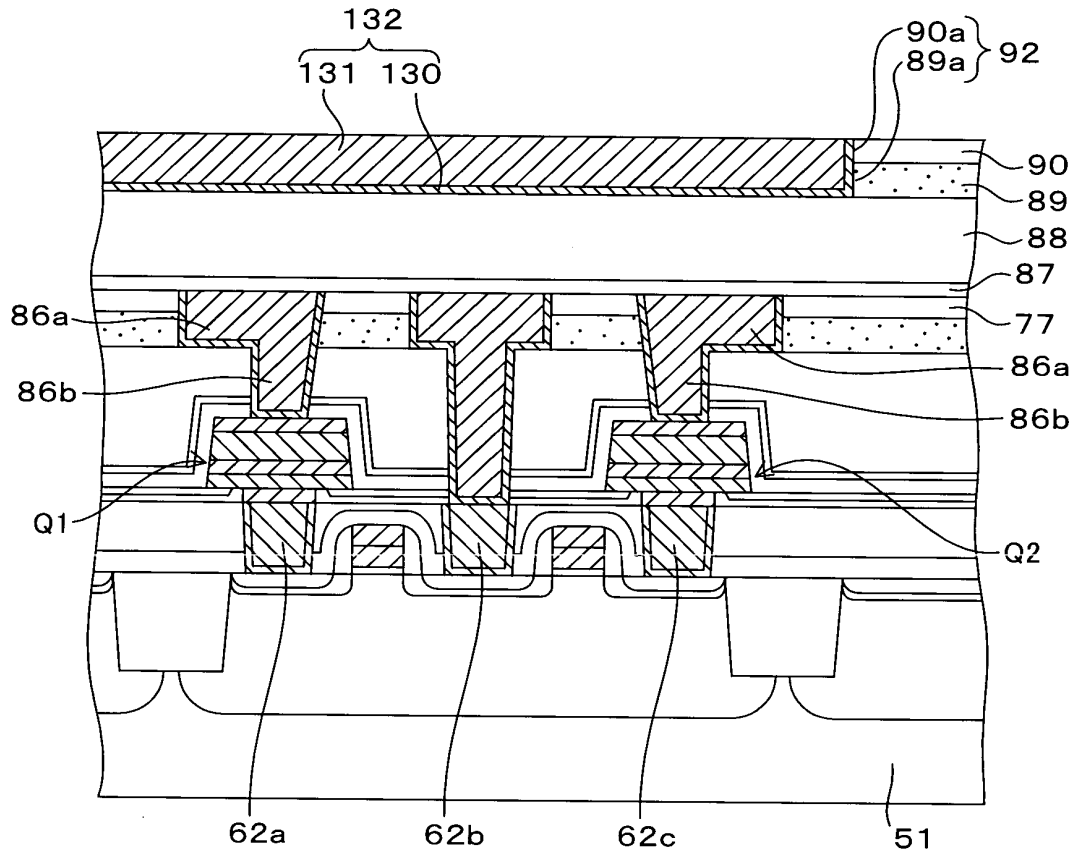




FIG. 33

